

REMARKS

In the present Amendment, claim 1 has been amended to incorporate the subject matter of claim 5, and claim 6 has been amended to incorporate the subject matter of claim 10.

Accordingly, claims 5 and 10 have been cancelled. Claim 11 has been amended to replace the expression “a device separating plane” with “a device separating groove.” Section 112 support for this amendment may be found, for example, in paragraph [0068] of the publication of the present application, the second full paragraph at page 18 of the specification, and in Figure 4.

Claims 12-21 have been cancelled without prejudice or disclaimer. No new matter has been added, and entry of the Amendment is respectfully requested.

Upon entry of the Amendment, claims 1-4, 6-9 and 11 will be pending.

In paragraph No. 1 of the Action, the Examiner reiterates the Restriction Requirement made by telephone on May 31, 2007 and requires affirmation of Applicants’ election in responding to the Office Action.

In response, Applicants affirm their election of claims 1-11.

In paragraph No. 7 of the Action, claim 11 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Examiner contends that it is unclear what is being referred to as a “device separating plane.”

As noted, claim 11 has been amended to replace the expression “a device separating plane” with “a device separating groove.” The amendment is believed to address the Examiner’s concern. Accordingly, reconsideration and withdrawal of the § 112 rejection of claim 11 are respectfully requested.

In paragraph No. 9 of the Action, claims 1-11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tadatomo et al (U.S. 6,225,650) in view of Motoki et al (U.S. 2003/0145783).

Applicants submit that this rejection should be withdrawn because Tadatomo and Motoki do not disclose or render obvious the nitride semiconductor device of the present invention.

The presently claimed nitride semiconductor substrate defined by amended claims 1 and 6 is characterized in that a group III nitride semiconductor substrate has a dislocation density in the vicinity of the surface thereof of $1 \times 10^7/\text{cm}^2$ or less, and a mask has a polycrystalline material deposited on the surface thereof.

The presently claimed nitride semiconductor substrate is based on the premise that a group III nitride semiconductor substrate having a dislocation density in the vicinity of the surface thereof of $1 \times 10^7/\text{cm}^2$ or less is used. In case that such a substrate is used, Applicants have found that the following problems are caused, based on their investigation as described at page 4, line 13 to page 6, line 13 of the present specification:

When a mask is provided on a low dislocation substrate and a group III nitride semiconductor is grown thereon, many dislocations develop from the vicinity of the mask (page 6, lines 21-23 of the specification), and the development of this type of dislocation is marked when a substrate having a low dislocation density is used (page 6, lines 24-25).

These phenomena become more apparent for a substrate in which dislocations have been reduced to less than $10^7/\text{cm}^2$ (page 6, lines 26-27 of the specification).

That is, in case that a group III nitride semiconductor is grown on a substrate having a low dislocation density, many dislocations develop from the vicinity of the mask.

According to the presently claimed invention, the above problems are solved by using a polycrystalline material deposited on the surface of the mask.

Tadatomo fails to disclose a substrate having a low dislocation density or a mask having a polycrystalline material deposited on the surface thereof.

Motoki fails to disclose using a substrate having a dislocation density of $1 \times 10^7/\text{cm}^2$ or less for forming a mask having a polycrystalline material on the substrate.

Neither Tadatomo nor Motoki teaches or suggests that a group III nitride semiconductor substrate having a low dislocation density is used, and a mask having a polycrystalline material is formed over the substrate. Therefore, it is not recognized in Tadatomo and Motoki that the problem of developing many dislocations from the vicinity of the mask is caused. Thus, neither Tadatomo nor Motoki teaches or suggests a means for solving the above problem which is particularly caused in case that the group III nitride semiconductor is grown on a substrate having a low dislocation density.

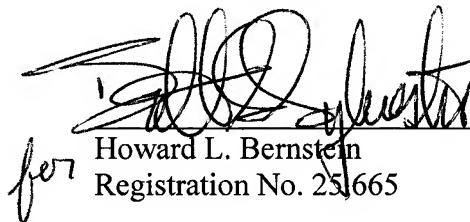
Additionally, the present invention effectively solves the problem characteristic of the case in which a semiconductor layer is grown from a mask on such a low dislocation substrate; that is, the problem that new dislocations develop in the vicinity of the mask. See page 8, lines 17-21 of the specification. This effect is shown in Examples 1 and 2 of the present application.

In view of the above, reconsideration and withdrawal of the § 103(a) rejection based on Tadatomo et al '650 in view of Motoki et al '783 are respectfully requested.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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